

4240-149 Sequence Listing.txt  
SEQUENCE LISTING

<110> PARK, Yoon Jeong  
CHUNG, Chong-Pyoung  
LEE, Seung Jin  
RHEE, Sang Hoon

<120> Bone Graft and Scaffolding Materials Immobilized with  
Osteogenesis Enhancing Peptides on the Surface

<130> 4240-149

<140> not yet assigned  
<141> 2006-09-19

<150> PCT/KR2005/000801  
<151> 2005-03-18

<150> 10-2004-0019010  
<151> 2004-03-19

<160> 69

<170> PatentIn version 3.3

<210> 1  
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<223> RGD containing peptide

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Cys Gly Gly Arg Gly Asp Ser  
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<400> 3

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Ala Lys His Lys Gln Arg Lys Arg Leu Lys Ser Ser Cys Lys Arg His  
1 5 10 15

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Cys Ser Ser Arg Lys Lys Asn Lys Asn Cys Arg Arg His  
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Ser Asp Val Gly Trp Asn Asp Trp Ile Val Ala Pro Pro Gly Tyr His  
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Cys Pro Phe Pro Leu Ala Asp His Leu Ser Thr Asn His Ala Ile Val  
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Gln Thr Leu Val Asn Ser Val Asn  
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Lys Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser  
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Met Leu Tyr Leu  
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Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val Val Leu Lys Asn Tyr  
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Gln Asp

<210> 10  
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<400> 10

Gln Ala Lys His Lys Gln Arg Lys Arg Leu Lys Ser Ser Cys Lys Arg  
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His Pro Leu Tyr  
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<210> 11  
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4240-149 Sequence Listing.txt

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Met Leu Tyr Leu  
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<210> 12

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<223> Partial peptide of BMP-7

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Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val Val Leu Lys Asn Tyr  
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Gln Asp Met Val Val  
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Ser Ser Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile  
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Ser Met Leu Tyr Leu  
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<223> Partial peptide of bone sialoprotein

<400> 14

Pro Lys His His Ser Gln Arg Ala Arg Lys Lys Asn Lys Asn Cys Arg  
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Arg His Ser Leu Tyr  
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4240-149 Sequence Listing.txt

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Ser Ser Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile  
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Ser Met Leu Tyr Leu  
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<210> 16  
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Ser Met Leu Tyr Leu Asp Glu Tyr Asp Lys Val Val Leu Lys Asn Tyr  
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Gln Glu Met Val Val  
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Tyr Val Pro Lys Pro Cys Cys Ala Pro Thr Lys Leu Asn Ala Ile Ser  
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Val Leu Tyr Phe  
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4240-149 Sequence Listing.txt

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Val Ser Ser Ala Ser Asp Tyr Asn Ser Ser Glu Leu Lys Thr Ala Cys  
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Arg Lys His Glu Leu Tyr  
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Val Leu Tyr Phe  
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Arg Asn Met Val Val Arg Ala Cys  
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Val Leu Tyr Phe  
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4240-149 Sequence Listing.txt

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Tyr Val Ser Phe Arg  
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Val Leu Tyr Phe  
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<220>  
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<400> 24

Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn Val Ile Leu Lys Lys Tyr  
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Arg Asn Met

<210> 25  
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Glu Glu Glu Gly Glu Glu Glu Glu  
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<210> 26

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<223> Partial peptide of bone sialoprotein

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Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu  
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<210> 27

<211> 18

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<223> Partial peptide of bone sialoprotein

<400> 27

Tyr Glu Thr Tyr Asp Glu Asn Asn Gly Glu Pro Arg Gly Asp Thr Tyr  
1 5 10 15

Arg Ile

<210> 28

<211> 6

<212> PRT

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<220>

<223> Partial peptide of bone sialoprotein

<400> 28

Glu Glu Gly Glu Glu Glu  
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<210> 29

<211> 8

<212> PRT

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<223> Partial peptide of bone sialoprotein

<400> 29

Glu Glu Glu Glu Glu Glu Glu Glu



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Tyr Glu Ile Tyr Glu Ser Glu Asn Gly Glu Pro Arg Gly Asp Asn Tyr  
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Arg

<210> 31  
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<212> PRT  
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<400> 31

Lys Asn Leu His Arg Arg Val Lys Ile  
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<210> 32  
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<212> PRT  
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<400> 32

Asp Ser Ser Glu Glu Asn Gly Asp Asp Ser Ser Glu Glu Glu Glu  
1 5 10 15

Glu Glu Glu Thr Ser Asn Glu Gly Glu Asn  
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<223> Partial peptide of bone sialoprotein

<400> 33

4240-149 Sequence Listing.txt

Asp Glu Glu Glu Glu Glu Glu Glu Glu Gly Asn Glu Asn Glu Glu Ser  
1 5 10 15

Glu Ala Glu Val Asp  
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<400> 34

Ser Glu Asn Gly Glu Pro Arg Gly Asp Asn Tyr  
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<210> 35  
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Thr Gly Arg Arg Gly Asp Leu Ala Thr  
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<210> 36  
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<400> 36

Arg Ala Leu Asp Thr Asn Tyr Cys Phe Ser Ser Thr Glu Lys Asn Cys  
1 5 10 15

Cys Val Arg Gln Leu  
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<210> 37  
<211> 19  
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<220>  
<223> Partial peptide of TGF

<400> 37

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Leu Tyr Asn Gln His Asn Pro Gly Ala Ser Ala Ala Pro Cys Cys Val  
1 5 10 15

Pro Gln Ala

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<212> PRT  
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<220>  
<223> Partial peptide of PDGF

<400> 38

Cys Glu Thr Val Ala Ala Ala Arg Pro Val Thr Arg Ser Pro Gly Gly  
1 5 10 15

Ser Gln Glu Gln Arg  
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<210> 39  
<211> 20  
<212> PRT  
<213> Artificial

<220>  
<223> Partial peptide of PDGF

<400> 39

Ala Lys Thr Pro Gln Thr Arg Val Thr Ile Arg Thr Val Arg Val Arg  
1 5 10 15

Arg Pro Pro Lys  
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<211> 9  
<212> PRT  
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Tyr Lys Lys Pro Lys Leu Leu Tyr Cys  
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<210> 41  
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<220>

<223> Partial peptide of AFGF

<400> 41

Ile Ser Lys Lys His Ala Glu Lys  
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<223> Partial peptide of BFGF

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Gly His Phe Lys Asp Pro Lys Arg Leu Tyr Cys Lys  
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<210> 43

<211> 6

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<223> Partial peptide of BFGF

<400> 43

Pro Asp Gly Arg Val Asp  
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<210> 44

<211> 7

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<400> 44

Lys Glu Asp Gly Arg Leu Leu  
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Tyr Arg Ser Arg Lys Tyr

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<400> 46

Glu Asp Glu Gly Ser Gly Asp Asp Glu Asp Glu Glu Ala Gly Asn Gly  
1 5 10 15

Lys Asp Ser Ser Asn  
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<210> 47  
<211> 20  
<212> PRT  
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<400> 47

Asp Asp Ala Asn Ser Glu Ser Asp Asn Asn Ser Ser Ser Arg Gly Asp  
1 5 10 15

Ala Ser Tyr Asn  
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<400> 48

Asp Ser Asp Ser Ser Asp Ser Ser Asn Ser Ser Asp Ser Ser Asp Ser  
1 5 10 15

Ser Asp Ser Asp Ser Ser Asp  
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<223> Partial peptide of heparin binding EGF like GF

<400> 49

Asp Leu Gln Glu Ala Asp Leu Ala Leu Leu Arg Val Thr Leu Ser Ser  
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Lys Pro Gln Ala Leu Ala  
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<211> 20

<212> PRT

<213> Artificial

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<223> Partial peptide of heparin binding EGF like GF

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Ala Thr Pro Asn Lys Glu Glu His Gly Lys Arg Lys Lys Lys Gly Lys  
1 5 10 15

Gly Leu Gly Lys  
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<210> 51

<211> 13

<212> PRT

<213> Artificial

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<223> Partial peptide of heparin binding EGF like GF

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Lys Arg Asp Pro Cys Leu Arg Lys Tyr Lys Asp Phe Cys  
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<212> PRT

<213> Artificial

<220>

<223> Partial peptide of heparin binding EGF like GF

<400> 52

Cys Lys Tyr Val Lys Glu Leu Arg Ala Pro Ser Cys Ile Cys His Pro  
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Gly Tyr His Gly  
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<210> 53

4240-149 Sequence Listing.txt

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<223> Partial peptide of cadherin EGF LAG seven-pass G-type receptor3

<400> 53

Pro Gln Tyr Asn Tyr Gln Thr Leu Val Pro Glu Asn Glu Ala Ala Gly  
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Thr Ala Val Leu Arg Val Val Ala Gln  
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<210> 54  
<211> 21  
<212> PRT  
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<223> Partial peptide of cadherin EGF LAG seven-pass G-type receptor3

<400> 54

Asp Pro Asp Ala Gly Glu Ala Gly Arg Leu Val Tyr Ser Leu Ala Ala  
1 5 10 15

Leu Met Asn Ser Arg  
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<212> PRT  
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<223> Partial sequence of cadherin EGF LAG seven-pass G-type receptor3

<400> 55

Ser Leu Glu Leu Phe Ser Ile Asp Pro Gln Ser Gly Leu Ile Arg Thr  
1 5 10 15

Ala Ala Ala Leu Asp Arg Glu Ser Met Glu Arg His Tyr  
20 25

<210> 56  
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<400> 56

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Leu Arg Val Thr Ala Gln Asp His Gly Ser Pro Arg Leu Ser Ala Thr  
1 5 10 15

Thr Met Val Ala Val Thr Val  
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<400> 57

Glu Gln Ala Gln Tyr Arg Glu Thr Leu Arg Glu Asn Val Glu Glu Gly  
1 5 10 15

Tyr Pro Ile Leu Gln Leu Arg Ala Thr Asp Gly Asp Ala Pro Pro Asn  
20 25 30

Ala Asn Leu Arg Tyr Arg Phe Val Gly Pro Pro Ala Ala Arg Ala Ala  
35 40 45

Ala Ala Ala Ala Phe Glu Ile Asp Pro Arg Ser Gly Leu Ile Ser Thr  
50 55 60

Ser Gly Arg Val Asp Arg Glu His Met Glu Ser Tyr Glu Leu Val Val  
65 70 75 80

Glu Ala Ser Asp Gln Gly Gln Glu Pro Gly Pro Arg Ser Ala Thr Val  
85 90 95

Arg Val His Ile Thr Val Leu Asp Glu Asn Asp Asn Ala Pro Gln Phe  
100 105 110

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Ser Glu Lys Arg Tyr Val Ala Gln Val Arg Glu Asp Val Arg Pro His  
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Thr Val Val Leu Arg Val Thr Ala Thr Asp Arg Asp Lys Asp Ala Asn  
20 25 30



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Gly Leu Val His Tyr Asn Ile Ile Ser Gly Asn Ser Arg Gly His Phe  
35 40 45

Ala Ile Asp Ser Leu Thr Gly Glu Ile Gln Val Val Ala Pro Leu Asp  
50 55 60

Phe Glu Ala Glu Arg Glu Tyr Ala Leu Arg Ile Arg Ala Gln Asp Ala  
65 70 75 80

Gly Arg Pro Pro Leu Ser Asn Asn Thr Gly Leu Ala Ser Ile Gln Val  
85 90 95

Val Asp Ile Asn Asp His Ile Pro Ile Phe  
100 105

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<211> 59

<212> PRT

<213> Artificial

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<223> Partial peptide of cadherin EGF LAG seven-pass G-type receptor3

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Asp Asp Asn Val Cys Leu Arg Glu Pro Cys Glu Asn Tyr Met Lys Cys  
1 5 10 15

Val Ser Val Leu Arg Phe Asp Ser Ser Ala Pro Phe Leu Ala Ser Ala  
20 25 30

Ser Thr Leu Phe Arg Pro Ile Gln Pro Ile Ala Gly Leu Arg Cys Arg  
35 40 45

Cys Pro Pro Gly Phe Thr Gly Asp Phe Cys Glu  
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<211> 37

<212> PRT

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<223> Partial peptide of cadherin EGF LAG seven-pass G-type receptor3

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Glu Leu Asp Leu Cys Tyr Ser Asn Pro Cys Arg Asn Gly Gly Ala Cys  
1 5 10 15

Ala Arg Arg Glu Gly Gly Tyr Thr Cys Val Cys Arg Pro Arg Phe Thr  
20 25 30

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Gly Glu Asp Cys Glu  
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<400> 61

Glu Ala Gly Arg Cys Val Pro Gly Val Cys Arg Asn Gly Gly Thr Cys  
1 5 10 15

Thr Asp Ala Pro Asn Gly Gly Phe Arg Cys Gln Cys Pro Ala Gly Gly  
20 25 30

Ala Phe Glu Gly Pro Arg Cys Glu  
35 40

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<212> PRT  
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<223> Partial peptide of cadherin EGF LAG seven-pass G-type receptor3

<400> 62

Val Ala Ala Arg Ser Phe Pro Pro Ser Ser Phe Val Met Phe Arg Gly  
1 5 10 15

Leu Arg Gln Arg Phe His Leu Thr Leu Ser Leu Ser Phe Ala Thr Val  
20 25 30

Gln Gln Ser Gly Leu Leu Phe Tyr Asn Gly Arg Leu Asn Glu Lys His  
35 40 45

Asp Phe Leu Ala Leu Glu Leu Val Ala Gly Gln Val Arg Leu Thr Tyr  
50 55 60

Ser Thr Gly Glu Ser Asn Thr Val Val Ser Pro Thr Val Pro Gly Gly  
65 70 75 80

Leu Ser Asp Gly Gln Trp His Thr Val His Leu Arg Tyr Tyr Asn Lys  
85 90 95

Pro Arg Thr Asp Ala Leu Gly Gly Ala Gln Gly Pro Ser Lys Asp Lys  
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100

105

110

Val Ala Val Leu Ser Val Asp Asp Cys Asp Val Ala Val Ala Leu Gln  
115 120 125

Phe Gly Ala Glu Ile Gly Asn Tyr Ser Cys Ala Ala Ala Gly Val Gln  
130 135 140

Thr Ser Ser Lys Lys Ser Leu Asp Leu Thr Gly Pro Leu Leu Leu Gly  
145 150 155 160

Gly Val Pro Asn Leu Pro Glu Asn Phe Pro Val Ser His Lys Asp Phe  
165 170 175

Ile Gly Cys Met Arg Asp Leu His Ile Asp Gly Arg Arg Val Asp Met  
180 185 190

Ala Ala Phe Val Ala Asn Asn Gly Thr Met Ala Gly Cys  
195 200 205

<210> 63  
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<400> 63

Pro His His Phe Arg Gly Asn Gly Thr Leu Ser Trp Asn Phe Gly Ser  
1 5 10 15

Asp Met Ala Val Ser Val Pro Trp Tyr Leu Gly Leu Ala Phe Arg Thr  
20 25 30

Arg Ala Thr Gln Gly Val Leu Met Gln Val Gln Ala Gly Pro His Ser  
35 40 45

Thr Leu Leu Cys Gln Leu Asp Arg Gly Leu Leu Ser Val Thr Val Thr  
50 55 60

Arg Gly Ser Gly Arg Ala Ser His Leu Leu Leu Asp Gln Val Thr Val  
65 70 75 80

Ser Asp Gly Arg Trp His Asp Leu Arg Leu Glu Leu Gln Glu Glu Pro  
85 90 95

Gly Gly Arg Arg Gly His His Val Leu Met Val Ser Leu Asp Phe Ser  
100 105 110

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Leu Phe Gln Asp Thr Met Ala Val Gly Ser Glu Leu Gln Gly Leu Lys  
115 120 125

Val Lys Gln Leu His Val Gly Gly Leu Pro Pro Gly Ser Ala Glu Glu  
130 135 140

Ala Pro Gln Gly Leu Val Gly Cys Ile Gln Gly Val Trp Leu Gly Ser  
145 150 155 160

Thr Pro Ser Gly Ser Pro Ala Leu Leu Pro Pro Ser His Arg Val Asn  
165 170 175

Ala Glu Pro Gly Cys  
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Cys Pro Cys Arg Pro Gly Ala Leu Gly Arg Gln Cys Asn Ser Cys Asp  
1 5 10 15

Ser Pro Phe Ala Glu Val Thr Ala Ser Gly Cys Arg Val Leu Tyr Asp  
20 25 30

Ala Cys Pro Lys  
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<400> 65

Gly Trp Val Trp Asn Gln Phe Phe Val Ile Gly Gly Tyr Thr Gly Pro  
1 5 10 15

Asp Pro Val Leu Val Gly Arg Leu His Ser Asp Ile Asp Ser Gly Asp  
20 25 30

Gly Asn Ile Lys Tyr Ile Leu Ser Gly Glu Gly Ala Gly Thr Ile Phe  
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35

Val Ile Asp Asp Lys Ser Gly Asn Ile His Ala Thr Lys Thr Leu Asp  
50 55 60

Arg Glu Glu Arg Ala Gln Tyr Thr Leu Met Ala Gln Ala Val Asp Arg  
65 70 75 80

Asp Thr Asn Arg Pro Leu Glu Pro Pro Ser Glu Phe Ile Val Lys Val  
85 90 95

Gln Asp Ile Asn Asp Asn Pro Pro Glu Phe  
100 105

<210> 66  
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<212> PRT  
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<220>  
<223> Partial peptide of OB-cadherin

<400> 66

Leu His Glu Thr Tyr His Ala Asn Val Pro Glu Arg Ser Asn Val Gly  
1 5 10 15

Thr Ser Val Ile Gln Val Thr Ala Ser Asp Ala Asp Asp Pro Thr Tyr  
20 25 30

Gly Asn Ser Ala Lys Leu Val Tyr Ser Ile Leu Glu Gly Gln Pro Tyr  
35 40 45

Phe Ser Val Glu Ala Gln Thr Gly Ile Ile Arg Thr Ala Leu Pro Asn  
50 55 60

Met Asp Arg Glu Ala Lys Glu Glu Tyr His Val Val Ile Gln Ala Lys  
65 70 75 80

Asp Met Gly Gly His Met Gly Gly Leu Ser Gly Thr Thr Lys Val Thr  
85 90 95

Ile Thr Leu Thr Asp Val Asn Asp Asn Pro Pro Lys Phe  
100 105

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<223> Partial peptide of OB-cadherin

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Pro Gln Arg Leu Tyr Gln Met Ser Val Ser Glu Ala Ala Val Pro Gly  
1 5 10 15

Glu Glu Val Gly Arg Val Lys Ala Lys Asp Pro Asp Ile Gly Glu Asn  
20 25 30

Gly Leu Val Thr Tyr Asn Ile Val Asp Gly Asp Gly Met Glu Ser Phe  
35 40 45

Glu Ile Thr Thr Asp Tyr Glu Thr Gln Glu Gly Val Ile Lys Leu Lys  
50 55 60

Lys Pro Val Asp Phe Glu Thr Glu Arg Ala Tyr Ser Leu Lys Val Glu  
65 70 75 80

Ala Ala Asn Val His Ile Asp Pro Lys Phe Ile Ser Asn Gly Pro Phe  
85 90 95

Lys Asp Thr Val Thr Val Lys Ile Ser Val Glu Asp Ala Asp Glu Pro  
100 105 110

Pro Met Phe  
115

<210> 68  
<211> 106  
<212> PRT  
<213> Artificial

<220>  
<223> Partial peptide of OB-cadherin

<400> 68

Pro Met Phe Leu Ala Pro Ser Tyr Ile His Glu Val Gln Glu Asn Ala  
1 5 10 15

Ala Ala Gly Thr Val Val Gly Arg Val His Ala Lys Asp Pro Asp Ala  
20 25 30

Ala Asn Ser Pro Ile Arg Trp Ser Ile Asp Arg His Thr Asp Leu Asp  
35 40 45

Arg Phe Phe Thr Ile Asn Pro Glu Asp Gly Phe Ile Lys Thr Thr Lys  
50 55 60

Pro Leu Asp Arg Glu Glu Thr Ala Trp Leu Asn Ile Thr Val Phe Ala  
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65

70

75

80

Ala Glu Ile His Asn Arg His Gln Glu Ala Gln Val Pro Val Ala Ile  
85 90 95

Arg Val Leu Asp Val Asn Asp Asn Ala Pro  
100 105

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<212> PRT

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<223> Partial peptide of OB-cadherin

<400> 69

Lys Phe Ala Ala Pro Tyr Glu Gly Phe Ile Cys Glu Ser Asp Gln Thr  
1 5 10 15

Lys Pro Leu Ser Asn Gln Pro Ile Val Thr Ile Ser Ala Asp Asp Lys  
20 25 30

Asp Asp Thr Ala Asn Gly Pro Arg Phe Ile Phe Ser Leu Pro Pro Gly  
35 40 45

Ile Ile His Asn Pro Asn Phe Thr Val Arg Asp Asn Arg Asp Asn Thr  
50 55 60

Ala Gly Val Tyr Ala Arg Arg Gly Gly Phe Ser Arg Gln Lys Gln Asp  
65 70 75 80

Leu Tyr Leu Leu Pro Ile Val Ile Ser Asp Gly Gly Ile Pro Pro Met  
85 90 95

Ser Ser Thr Asn Thr Leu Thr Ile Leu Val Cys Gly Cys Asp Val Asn  
100 105 110

Gly Ala Leu Leu Ser Cys Asn Ala Glu Ala Tyr Ile Leu Asn  
115 120 125